HEXAWARE

Coding Challenge1

- Provide a SQL script that initializes the database for the Job Board scenario "CareerHub".
- 2. Create tables for Companies, Jobs, Applicants and Applications.
- 3. Define appropriate primary keys, foreign keys, and constraints.
- 4. Ensure the script handles potential errors, such as if the database or tables already exist.

```
mysql> create database CareerHub;
Query OK, 1 row affected (0.02 sec)
mysql> use CareerHub;
Database changed
mysql> CREATE TABLE Companies (
     -> CompanyID INT PRIMARY KEY,
-> CompanyName VARCHAR(255),
     ->
             Location VARCHAR(255)
-> );
Query OK, 0 rows affected (0.05 sec)
mysql> CREATE TABLE Jobs (
    -> );
Query OK, 0 rows affected (0.06 sec)
mysql> CREATE TABLE Applicants (
     -> ApplicantID INT PRIMARY KEY,
-> FirstName VARCHAR(255),
     -> LastName VARCHAR(255),
-> Fmail VARCHAR(255)
            Email VARCHAR(255),
Phone VARCHAR(20),
     ->
             Resume TEXT
-> );
Query OK, 0 rows affected (0.03 sec)
mysql> CREATE TABLE Applications (
     -> ApplicationID INT PRIMARY KEY,
    -> ApplicationEd INT PRIMARY RET,
-> JobID INT,
-> ApplicantID INT,
-> ApplicationDate DATETIME,
-> CoverLetter TEXT,
-> FOREIGN KEY (JobID) REFERENCES Jobs(JobID),
-> FOREIGN KEY (ApplicantID) REFERENCES Applicants(ApplicantID)
Query OK, 0 rows affected (0.05 sec)
```

5. Write an SQL query to count the number of applications received for each job listing in the "Jobs" table. Display the job title and the corresponding application count. Ensure that it lists all jobs, even if they have no applications.

```
mysql> SELECT
            Jobs.JobID,
Jobs.JobTitle,
COUNT(Applications.ApplicationID) AS ApplicationCount
    -> FROM
    -> Jobs
-> LEFT JOIN
            Applications ON Jobs.JobID = Applications.JobID
    -> GROUP BY
            Jobs.JobID, Jobs.JobTitle;
 JobID | JobTitle
                                           ApplicationCount
           Software Engineer
    102
           Financial Analyst
    103
           Medical Researcher
           Data Scientist
    104
    105
           Environmental Engineer
           Cybersecurity Specialist
Healthcare IT Consultant
    106
                                                            1
    107
                                                            1
           Manufacturing Engineer
    108
                                                            1
           EdTech Content Developer
    109
          E-commerce Manager
    110
10 rows in set (0.00 sec)
```

6. Develop an SQL query that retrieves job listings from the "Jobs" table within a specified salary range. Allow parameters for the minimum and maximum salary values. Display the job title, company name, location, and salary for each matching job.

```
JobTitle,
(SELECT CompanyName FROM Companies WHERE Companies.CompanyID = Jobs.CompanyID) AS CompanyName,
         Salary
  -> FROM
         Jobs
  -> WHERE
         Salary BETWEEN 95000 AND 125000;
JobTitle
                           | CompanyName
                                                          JobLocation
                                                                               | Salary |
                           | TechCorp
                                                            Silicon Valley
                                                                               1 120000
Software Engineer
Medical Researcher
                             MedTech Solutions
                                                                                 110000
                                                            Boston
Environmental Engineer
                             Green Energy Solutions
                                                            Los Angeles
                                                                                  95000
Cybersecurity Specialist | CyberSec Guard
Healthcare IT Consultant | HealthHub Inc.
                            CyberSec Guardians
                                                            Washington, D.C.
                                                                                 115000
                                                            Chicago
                                                                                 100000
                             Manufacturing Innovations
Manufacturing Engineer
                                                                                 105000
                                                            Detroit
E-commerce Manager
                           E-commerce Express
                                                            Seattle
                                                                                120000
rows in set (0.00 sec)
```

7. Write an SQL query that retrieves the job application history for a specific applicant. Allow a parameter for the ApplicantID, and return a result set with the job titles, company names, and application dates for all the jobs the applicant has applied to.

```
mysql> SELECT
           Jobs.JobTitle,
           Companies.CompanyName,
           Applications.ApplicationDate
   -> FROM
           Applications
    -> JOIN
           Jobs ON Applications.JobID = Jobs.JobID
    -> JOIN
           Companies ON Jobs.CompanyID = Companies.CompanyID
   -> WHERE
           Applications.ApplicantID = ApplicantID
                                                         | ApplicationDate
 JobTitle
                           | CompanyName
 Software Engineer
                             TechCorp
                                                           2023-02-01 08:30:00
                                                          2023-02-02 10:45:00
2023-02-03 12:15:00
 Financial Analyst
 Medical Researcher
                             MedTech Solutions
                                                          2023-02-04 09:00:00
 Data Scientist
                             Data Innovators
                                                          2023-02-05 14:30:00
 Environmental Engineer
                             Green Energy Solutions
                             CyberSec Guardians
                                                           2023-02-06 13:00:00
 Cybersecurity Specialist
 Healthcare IT Consultant
                             HealthHub Inc.
                                                           2023-02-07 15:30:00
                                                          2023-02-08 16:45:00
 Manufacturing Engineer
                             Manufacturing Innovations
                                                           2023-02-09 08:15:00
 EdTech Content Developer
                             EducationTech Systems
 E-commerce Manager
                             E-commerce Express
                                                           2023-02-10 17:15:00
10 rows in set (0.00 sec)
```

8. Create an SQL query that calculates and displays the average salary offered by all companies for job listings in the "Jobs" table. Ensure that the query filters out jobs with a salary of zero.

9. Write an SQL query to identify the company that has posted the most job listings. Display the company name along with the count of job listings they have posted. Handle ties if multiple companies have the same maximum count.

```
Companies.CompanyName,
COUNT(Jobs.JobID) AS JobCount
           Companies
          Jobs ON Companies.CompanyID = Jobs.CompanyID
    -> GROUP BY
           Companies.CompanyName
     -> ORDER BY
           JobCount DESC;
 CompanyName
                               | JobCount |
 MedTech Solutions
 Data Innovators
  Green Energy Solutions
  CyberSec Guardians
  HealthHub Inc.
 Manufacturing Innovations
EducationTech Systems
  E-commerce Express
10 rows in set (0.00 sec)
```

10. Find the applicants who have applied for positions in companies located in 'CityX' and have at least 3 years of experience.

```
mysql> SELECT

-> Applicants.ApplicantID,
-> Applicants.FirstName,
-> Applicants.Enail,
-> Applicants.Phone,
-> JOIN
-> Applications.ON ApplicantID = Applications.ApplicantID
-> JOIN
-> JOBSON Applications.JobID = Jobs.JobID
-> JOIN
-> Companies ON Jobs.CompanyID = Companies.CompanyID
-> WHERE
-> Companies.Location = 'New York'
-> -> ;

| ApplicantID | FirstName | LastName | Email | Phone | Resume |
| 2 | Jane | Smith | jane.smith@example.com | +9876543210 | Jane_Smith_Resume.docx |
| 1 row in set (0.00 sec)
```

11. Retrieve a list of distinct job titles with salaries veen \$60,000 and \$80,000.

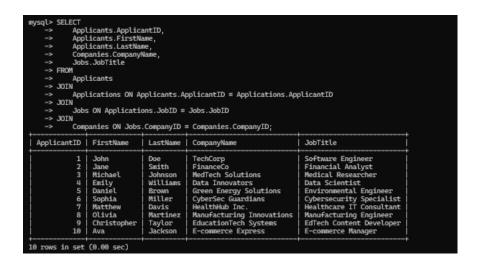
```
mysql> SELECT DISTINCT
-> JobTitle
-> FROM
-> Jobs
-> WHERE
-> Salary BETWEEN 60000 AND 80000;
Empty set (0.00 sec)
```

12. Find the jobs that have not received any applications least 3 years of experience.

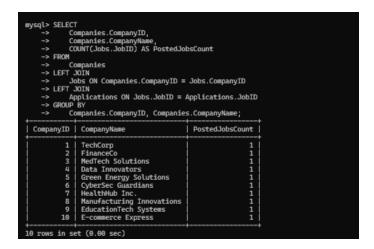
```
## SELECT

| Jobs. Job/File | Jobs. Solary | Jobs. Job/File | Jobs. Solary | Jobs. Job/File | Jobs. Solary | Jobs. Job/File | J
```

13. Retrieve a list of job applicants along with the companies they have applied to and the positions they have applied for.



14. Retrieve a list of companies along with the count of jobs they have posted, even if they have not received any applications.



15. List all applicants along with the companies and positions they have applied for, including those who have not applied.

```
Applicants.ApplicantID,
         Applicants.FirstName,
         Applicants.LastName,
         Companies.CompanyName,
         Jobs.JobTitle
  -> FROM
         Applicants
  -> CROSS JOIN
  -> Companies
-> CROSS JOIN
         Jobs
    LEFT JOIN
         Applications ON Applicants.ApplicantID = Applications.ApplicantID AND Jobs.JobID = Applications.JobID;
                           | LastName | CompanyName
ApplicantID | FirstName
                                                                     | JobTitle
              John
                             Doe
                                         E-commerce Express
                                                                      Software Engineer
                             Smith
                                                                       Software Engineer
                                         E-commerce Express
              Michael
                             Johnson
                                         E-commerce Express
                                                                      Software Engineer
          4
              Emily
                             Williams
                                        E-commerce Express
                                                                      Software Engineer
                                                                      Software Engineer
              Daniel
                             Brown
Miller
          5
                                         E-commerce Express
                                                                      Software Engineer
                                         E-commerce Express
              Sophia
              Matthew
                             Davis
                                         E-commerce Express
                                                                      Software Engineer
              Olivia
                             Martinez
                                         E-commerce Express
                                                                      Software Engineer
              Christopher
                             Taylor
                                         E-commerce Express
                                                                      Software Engineer
                                                                      Software Engineer
         10
              Ava
                             Jackson
                                         E-commerce Express
              John
                                         EducationTech Systems
                                                                      Software Engineer
                             Doe
                                                                      Software Engineer
                                         EducationTech Systems
                             Smith
               Jane
                             Johnson
              Michael
                                         EducationTech Systems
                                                                      Software Engineer
              Emily
Daniel
                             Williams
                                         EducationTech Systems
                                                                       Software Engineer
                             Brown
                                         EducationTech Systems
                                                                      Software Engineer
                             Miller
          6
7
              Sophia
                                         EducationTech Systems
                                                                      Software Engineer
                                         EducationTech Systems
                                                                      Software Engineer
Software Engineer
              Matthew
                             Davis
                                         EducationTech Systems
              Olivia
                             Martinez
              Christopher
                             Taylor
                                         EducationTech Systems
                                                                       Software Engineer
                                                                      Software Engineer
                                         EducationTech Systems
```

16. Find companies that have posted jobs with a salary higher than the average salary of all jobs.

```
mysql> SELECT DISTINCT
           Companies.CompanyID,
    ->
           Companies.CompanyName
    -> FROM
           Companies
    -> JOIN
          Jobs ON Companies.CompanyID = Jobs.CompanyID
    ->
    -> WHERE
           Jobs.Salary > (SELECT AVG(Salary) FROM Jobs);
 CompanyID | CompanyName
              TechCorp
          3
              MedTech Solutions
          4
              Data Innovators
              CyberSec Guardians
          6
         10
              E-commerce Express
5 rows in set (0.00 sec)
```

17. Display a list of applicants with their names and a concatenated string of their city and state.

```
mysql> SELECT

-> ApplicantID,

-> FirstName,

-> LastName,

-> CONCAT(City, ', ', State) AS Location

-> FROM

-> Applicants;
```

18. Retrieve a list of jobs with titles containing either 'Developer' or 'Engineer'.

```
mysql> SELECT

-> JobID,
-> JobTitle
-> FROM
-> Jobs
-> WHERE
-> JobTitle LIKE '%Developer%' OR JobTitle LIKE '%Engineer%';

| JobID | JobTitle |
| 101 | Software Engineer |
| 108 | Manufacturing Engineer |
| 109 | EdTech Content Developer |
4 rows in set (0.00 sec)
```

19. Retrieve a list of applicants and the jobs they have applied for, including those who have not applied and jobs without applicants.

```
mvsal> SELECT
           A.ApplicantID,
           A.FirstName,
          COALESCE(J.JobTitle, 'No Application') AS AppliedJobTitle
           Applicants A
           Applications AP ON A.ApplicantID = AP.ApplicantID
    -> LEFT JOIN
          Jobs J ON AP.JobID = J.JobID;
 ApplicantID | FirstName | LastName | AppliedJobTitle
                John
                                         | Software Engineer
| Financial Analyst
                               Smith
            2 | Jane
                Michael
                                           Medical Researcher
                Emily
                               Williams | Data Scientist
                Daniel
                               Brown
                                           Environmental Engineer
                                         | Cybersecurity Specialist
| Healthcare IT Consultant
                               Miller
                Sophia
                Matthew
                               Davis
                Olivia
                                Martinez
                                         | Manufacturing Engineer
                Christopher
                                Taylor
                                           EdTech Content Developer
                                         | E-commerce Manager
           10
                Ava
                               Jackson
```

20. List all combinations of applicants and companies where the company is in a specific city and the applicant has more than 2 years of experience. For example: city=Chennai.